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# A GENERAL GUIDE

TO THE

## BRITISH MUSEUM (NATURAL HISTORY)

CROMWELL ROAD, LONDON, S.W.

WITH PLANS AND A VIEW OF THE BUILDING.

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PRINTED BY ORDER OF THE TRUSTEES.

1887. [i.e. 1886]

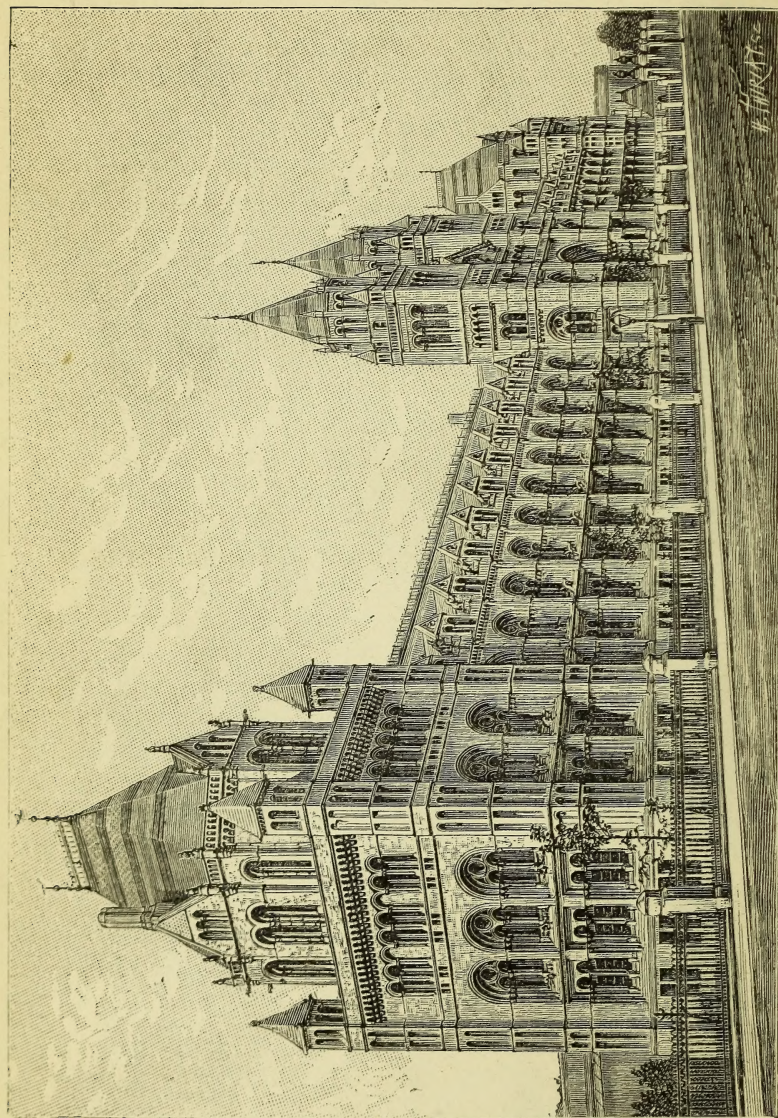
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PRINTED BY WILLIAM CLOWES AND SONS, LIMITED,  
STAMFORD STREET AND CHARING CROSS.





THE NATURAL HISTORY MUSEUM, CROMWELL ROAD.

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# TABLE OF CONTENTS.

|                                                                          | PAGE |
|--------------------------------------------------------------------------|------|
| HISTORICAL INTRODUCTION.. .. .                                           | 7    |
| DESCRIPTION OF THE BUILDING .. .. .                                      | 11   |
| OBJECTS OF THE MUSEUM AND GENERAL ARRANGEMENT<br>OF ITS CONTENTS .. .. . | 15   |
| TOPOGRAPHICAL DESCRIPTION OF THE MUSEUM AND ITS<br>CONTENTS .. .. .      | 21   |
| CENTRAL HALL .. .. .                                                     | 21   |
| GALLERY OF BRITISH ZOOLOGY .. .. .                                       | 27   |
| STAIRCASE AND CORRIDORS .. .. .                                          | 28   |
| WEST WING .. .. .                                                        | 29   |
| <i>Ground Floor</i> .. .. .                                              | 29   |
| Bird Gallery .. .. .                                                     | 29   |
| Coral Gallery .. .. .                                                    | 30   |
| Fish Gallery .. .. .                                                     | 30   |
| Insect Gallery .. .. .                                                   | 31   |
| Reptile Gallery .. .. .                                                  | 32   |
| Star-fish Gallery .. .. .                                                | 32   |
| Cetacea Gallery .. .. .                                                  | 32   |
| <i>First Floor</i> .. .. .                                               | 34   |
| Gallery of Stuffed Mammals .. .. .                                       | 34   |
| <i>Second Floor</i> .. .. .                                              | 34   |
| Gallery of Skeletons of Mammals .. .. .                                  | 34   |
| EAST WING .. .. .                                                        | 35   |
| <i>Ground Floor</i> .. .. .                                              | 35   |
| Palæontological Collections .. .. .                                      | 35   |
| <i>First Floor</i> .. .. .                                               | 37   |
| Mineralogical Collections .. .. .                                        | 37   |
| <i>Second Floor</i> .. .. .                                              | 38   |
| Botanical Collections .. .. .                                            | 38   |
| STAFF OF THE NATURAL HISTORY BRANCH OF THE<br>MUSEUM .. .. .             | 43   |
| LIST OF CATALOGUES .. .. .                                               | 44   |
| GUIDE BOOKS .. .. .                                                      | 47   |
| REGULATIONS FOR ADMISSION OF STUDENTS .. .. .                            | 48   |
| DAYS AND HOURS OF ADMISSION TO MUSEUM on back of cover.                  |      |



GENERAL GUIDE  
TO  
THE BRITISH MUSEUM  
(NATURAL HISTORY).

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HISTORICAL INTRODUCTION.

THE British Museum dates its actual foundation from the year **Foundation** 1753, when an Act of Parliament was passed "for the purchase of the Museum or Collection of Sir Hans Sloane, and of the Harleian Collection of Manuscripts, and for providing One General Repository for the better Reception and more convenient Use of the said Collections and of the Cottonian Library and of the Additions thereto."

Sir Hans Sloane, an eminent physician in London, was for **Sir Hans Sloane.** sixteen years President of the Royal College of Physicians, and in 1727 succeeded Sir Isaac Newton in the Presidential Chair of the Royal Society. He had been throughout his long life a diligent and miscellaneous collector, having, as stated in the Preamble of the Act of Incorporation of the Museum, "through the course of many years, with great labour and expense, gathered together whatever could be procured, either in our own or foreign countries, that was rare and curious." His collection, which at the time of his death in 1753 was contained in his residence, the Manor House, Chelsea, consisted of "books, drawings, manuscripts, prints, medals and coins, ancient and modern antiquities, seals, cameos and intaglios, precious stones, agates, jaspers, vessels of agate and jasper, crystals, mathematical instruments, pictures, and other things," which latter included numerous zoological and geological speci-

mens, and an extensive herbarium of dried plants preserved in 310 large folio volumes.

According to the terms of Sir Hans Sloane's will, this collection was purchased for the sum of £20,000, far below its intrinsic value, in order "that it might be preserved and maintained, not only for the inspection and entertainment of the learned and the curious, but for the general use and benefit of the public to all posterity."

The valuable collection of manuscripts formed by Sir Robert Cotton at the end of the sixteenth and beginning of the seventeenth centuries, was already the property of the nation, having been presented by his grandson, Sir John Cotton, in the year 1700. The Harleian Collection was obtained by purchase at the same time as the Sloanian, and the three were brought together under the designation of "the British Museum," placed under the care of a body of trustees,\* and lodged in Montagu House, Bloomsbury, purchased for their reception in 1754. They were opened to the public on the 15th of January, 1759. Admission to the galleries of antiquities and natural history was at first by ticket only on application in writing, and limited to ten, for each of three hours in the day. Visitors were not allowed to inspect the cases at their leisure, but were conducted through the galleries by officers of the house. The hours of admission were subsequently extended; but it was not until the year 1810 that the Museum was freely accessible to the general public for three days in the week, from ten to four o'clock. The present daily opening, with longer hours in summer, dates only from 1879.

At the time of the foundation of the Museum, the site allotted seemed amply sufficient for its purposes; but gradually, as the collections of all kinds increased, they outgrew the limits, not only of the original Montagu House, but even of its

\* The Trustees under the Act of Incorporation were the Archbishop of Canterbury, the Lord Chancellor, the Speaker of the House of Commons, and seventeen principal Officers of State, for the time being; six representatives of Founder's families; the Presidents of the Royal Society and College of Physicians; and fifteen other Trustees to be elected by them. Subsequently, the Presidents of the Royal Academy of Arts and of the Society of Antiquaries, a Trustee by special nomination of the Sovereign, and three more family Trustees were added to the Board.

successor, the present classical building, completed in 1845 from the designs of Sir Robert Smirke. The erection of the magnificent reading-room in 1857 disposed for a time of the difficulty of finding accommodation for the ever-growing library ; but the keepers of other departments continued urgent in their demands for more space, and after much discussion of rival plans for keeping the collections together and obtaining the needful extension of room by acquiring the property immediately around the old Museum, or for severing the collections and removing a portion to another building, the latter course was finally decided upon. At a special general meeting of the trustees, held on the 21st of January, 1860, attended by many members of the Government in their official capacity, a resolution moved by the First Lord of the Treasury was carried "That it is expedient that the Natural History Collection be removed from the British Museum, inasmuch as such an arrangement would be attended with considerably less expense than would be incurred by providing a sufficient additional space in immediate contiguity to the present building of the British Museum."

**Growth of Collections necessitating additional space.**

**Resolution to separate Natural History Collection.**

No immediate action was taken on this resolution. In order to obtain fuller assurance of the best methods of proceeding, a Select Committee of the House of Commons was appointed in the Session of the same year, 1860, with instructions to enquire how far, and in what way, it might be desirable to find increased space for the Museum collections. Their report, which was adverse to the decision of the general meeting of the Trustees of the 21st of January, stated "that sufficient reason has not been assigned for the removal of any part of the valuable collections now in the Museum, except that of Ethnography and the portraits and drawings," and suggested the purchase of the land and houses in the immediate vicinity of the old Museum as the best site for future extension.

**Select Committee of House of Commons.**

The Trustees had no other course than to refer to the Government the final determination of the question ; and in November, 1861, they received intimation from the Lords of the Treasury that they were prepared to take steps for removing a portion of the National Collection to South Kensington, and the Trustees were asked to give further advice in respect to this proposal.

**Government plans.**

Their recommendation was that the whole of the Natural History Collections should be simultaneously removed, as well as those of Ethnography. Accordingly a Bill was brought in by the Government early in the Session of 1862 to enable the Trustees to effect this removal; but it was rejected on the ground of the great outlay required for the erection of the proposed new building at South Kensington.

Purchase of  
land at South  
Kensington.

In the Session of 1863 the Government renewed their efforts to cope with the Museum difficulty, and after failing to induce the House of Commons to sanction the purchase of the entire Exhibition Buildings at South Kensington, with a view to appropriating a portion of them to the purpose of a Museum of Natural History, succeeded in obtaining a vote for the purchase of the requisite number of acres from the exhibition ground at the price of £10,000 per acre. The prospect of the immediate erection of the desired building seemed now sufficiently promising; but nearly twenty years were to elapse before its complete realisation. Plans of the proposed building had already been prepared for Government. In September, 1862, Mr. Hunt, of the Office of Works, was instructed to work out the design of a building suggested by Professor Owen, and this was submitted to the House of Commons in June, 1863. The proposed building was to have covered about four acres of land; would have consisted of a vaulted basement, two storeys above the roadway for the exhibition of the collections, with an attic over a part of the centre for libraries and professors' rooms, and would have included a theatre, 100 feet in diameter, for lectures. The site was to be on the east side of Queen's Gate, and the cost was estimated at £350,000.

Competitive  
designs.

*16*

In January, 1864, the Commissioners of Her Majesty's Works issued an advertisement for designs for a Natural History Museum and a Patent Museum, to be erected on part of the site of the International Exhibition at South Kensington, the plan prepared by Mr. Hunt in September, 1862, from Professor Owen's suggestions, being proposed as a model in respect to dimensions and internal arrangement.

Captain  
Fowke's plan.

The plans of the various competitors were submitted to Her Majesty's Commissioners of Works, who awarded prizes to three of the number, giving precedence to that of Captain Francis

Fowke, R.E., and then referred the three premiated plans to the Trustees of the British Museum. As the internal arrangements in Captain Fowke's plan did not meet with the approval of the Museum officers, he was desired to modify them in conformity with the requirements of the Trustees. He was engaged in this labour when his death occurred in September, 1865.

Early in the year 1866, Mr. Alfred Waterhouse was invited by the Chief Commissioner of Works to take up the unfinished work of Captain Fowke; but he found himself unable to complete the plan to his own satisfaction, and in February, 1868, he was commissioned to form a fresh design, embodying the requirements of the officers of the Natural History Departments of the Museum.

Mr. Waterhouse was not long in submitting to the Trustees his plan and model of the building, with a disposition of galleries as required, and these were formally accepted by the Trustees in April, 1868. It was not, however, until February, 1871, that the working plans had been thoroughly considered, and received the final approval of the Trustees.

The actual work of erection was commenced in the year 1873, and the building was handed over to the Trustees of the British Museum by Her Majesty's Commissioner of Works in the month of June, 1880. Immediately that the exhibition cases were completed, and the galleries were sufficiently dry to receive the collections, the great labour of removing the Natural History Collection from Bloomsbury was commenced. The departments of Geology, Mineralogy and Botany, were arranged in their respective sections of the Museum in the course of the year 1880, and the portion of the Museum which contained these departments was first opened to the public on April 18th, 1881. It was not until the following year that the cases destined to receive the larger collections of the Zoological Department were sufficiently complete to allow of these collections following, and three more years were required before all the rooms could be brought into a state fitted for public inspection. The last that was opened was the gallery devoted to British Zoology, in May, 1886.

The following description of the structure has been contributed by Mr. Waterhouse:—

“The New Natural History Museum will, from its position, always be more or less identified with the International

**Mr. Waterhouse engaged.**

**Completion of building and removal of Collections.**

**Description of the building.**

Exhibition of 1862, which occupied the whole of the site between the Horticultural Gardens and Cromwell Road. It was at one time thought that a portion, at any rate, of the Exhibition buildings could with advantage have been converted into a Museum of Natural History. Parliament, however, decided against the preservation of any part of these buildings, and they were accordingly entirely removed.

"In designing the present building, Captain Fowke's original idea of employing terra-cotta was always kept in view, though the blocks were reduced in size, so as to obviate, as far as possible, the objection to the employment of this material, arising from its liability to twist in burning. For this and other reasons the architect abandoned the idea of a Renaissance building, and fell back on the earlier Romanesque style which prevailed largely in Lombardy and the Rhineland from the tenth to the end of the twelfth century.

"In 1873, a contract was entered into by the Government with Messrs. George Baker and Sons, of Lambeth, for the erection of the building at a cost of £352,000. Other subsequent contracts have been entered into by the Treasury, especially one for the erection of the towers; which in the first instance it was decided to omit.

#### **Exterior.**

"On looking at the exterior of the building, one of the first points which strikes a spectator is that the site is lower than the street. This arises from the fact that the whole surface of the ground between the three roads was excavated for the Exhibition building of 1862, and it was not thought desirable, for economical considerations, to refill the space. The building is set back 100 feet from the Cromwell Road, and is approached by two inclined planes, curved on plan and supported by arches, forming carriage-ways. Between the two are broad flights of Craigleith stone steps, for the use of those approaching the building on foot. The extreme length of the front is 675 feet, and the height of the towers is 192 feet. The return fronts, east and west, beyond the end pavilions, have not yet been erected.\*

\* In judging the appearance of the exterior of the building, it must never be forgotten that these fronts are required to complete the design, as the externally unsightly brick galleries which run back from the main front, and are now conspicuous when the Museum is seen from either west or east, are intended to be concealed by them.

“On entering the main portal, the visitor has before him the great central apartment of the Museum (170 feet long, by 97 feet wide, and 72 feet high), which it is intended to use as an Index or Typical Museum. The double arch in the immediate foreground which spans the nave (57 feet wide), carries the staircase from the first to the second floor. Opposite the spectator, at the end of the hall, is the first flight of the staircase, 20 feet wide, which rises from the ground to the first floor. The galleries over the side recesses form the connection between the two staircases, and are also intended for exhibition space, as are also the floor of the main hall and the side recesses under the galleries. The arches under the side flights of the main staircase at the end of the hall lead into another large apartment, cruciform on plan, intended for the exhibition of specimens of British Natural History, with an extreme length of 97 by 77 feet measured into the arms of the cross.

Interior.  
Central Hall.

“Branching out of the Central Hall, near its southern extremity, are two long galleries, each 278 feet 6 in. long by 50 feet wide. These galleries are repeated on the first floor, and in a modified form on the second floor. They are divided into bays by coupled piers arranged in two rows down the length of the galleries, and planned in such a manner as to allow of upright cases being placed back to back between the piers and the outer walls, so as to get the best possible light upon the objects displayed in the cases with the least amount of reflection from the glass, and leaving the central space free as a passage. Owing to the nature of the specimens exhibited in one or two of these galleries requiring for their exhibition rather table-cases than wall-cases, advantage has only been taken to a limited extent of this disposition of the plan. These terra-cotta piers, however, are constructively necessary, not only to conceal the iron supports for the floor above, but to prevent these supports being affected in case of fire. Behind these galleries on the ground floor are a series of toplighted galleries, devoted, on the east side, to Geology and Palæontology, and on the west to Zoology.

Side galleries.

“The towers on the north of the building have each a central smoke-shaft from the heating apparatus, the boilers of which are placed in the basement, immediately between the towers,

Towers.

while the space surrounding the smoke-shafts is used for drawing off the vitiated air from the various galleries contiguous thereto. The front galleries are ventilated into the front towers, which form the crowning feature of the main front. These towers also contain, above the second floor, various rooms for the work of the different heads of departments, and on the topmost storey large cisterns for the purpose of always having at hand a considerable storage of water in case of fire. On the western side of the building, where it is intended that the Zoological collection shall be placed, the ornamentation of the terra-cotta (which will be found very varied both within and without the building) has been based exclusively on living organisms. On the east side, where Geology and Palæontology find a home, the terra-cotta ornamentation has been derived from extinct specimens.

“The Museum is the largest, if not, indeed, the only, modern building in which terra-cotta has been exclusively used for external façades and interior wall-surfaces, including all the varied decoration which this involves.”

Space occupied by building and grounds.

“The space covered by the building itself, including the detached portion behind, which contains the collections of animals preserved in spirit, is nearly four acres.

The whole ground on which the Museum stands, including the gardens which surround it on the south, east and west sides, is 12 acres and 635 yards. The gardens are open to the public whenever the Museum itself is open, under certain regulations which are posted at the entrance gates.

## OBJECTS OF THE MUSEUM AND GENERAL ARRANGEMENT OF ITS CONTENTS.

NATURAL HISTORY is an old term, used to describe the study of all the processes or laws of the Universe, and the results of the action of those processes or laws upon the materials of which it is composed, *which are independent of the agency of man*.\* Use of the term Natural History.

It is thus contrasted with the history of Man and of his works, and the changes which have been wrought in the Universe by his intervention.

This distinction has afforded a convenient and rational division of the numerous and multifarious objects collected together in the old building of the Museum at Bloomsbury. When it was decided, for the causes described in the previous chapter, to effect a separation of the collections, those that were purely the products of what are commonly called "natural" forces were removed to the new building at South Kensington, while all those which showed in any way the impress of that powerful agency introduced into the world at a comparatively late period of its history, the intelligence of Man, remained at Bloomsbury.

Processes or laws cannot, however, be satisfactorily demonstrated in a Museum; therefore such branches of knowledge as deal chiefly with them, as Astronomy, Geology (in the stricter sense of the word), Chemistry and Physiology, still less the more abstract sciences of Physics and Mathematics, though essentially belonging to the domain of Natural History, do not find a place here. It is only the results of the working of these processes or laws as shown in the modifications of the arrangement of the elementary substances of which the material of the Universe is composed, which can be fully illustrated by specimens admitting of being readily preserved and permanently exhibited in a museum. It will be readily understood that as the study of such specimens is one of the principal means by

\* "Natural history—is the history of such facts or effects of nature as have no dependence on man's will."—*Hobbes*, 1651.

which the laws themselves may be traced out, it is of the utmost importance for the progress of those departments of knowledge which the Museum is designed to cultivate, to bring together as complete an illustrative series of them as possible.

Division into  
Mineral, Vege-  
table and  
Animal.

Although the validity of the old division of all natural objects into *inorganic* and *organic* or *living* has been the subject of some discussion, and although the division of the latter into *vegetable* and *animal* is perhaps less absolute than was once supposed, yet for practical purposes, MINERAL, VEGETABLE, and ANIMAL still remain the three great divisions or "kingdoms" into which natural bodies are grouped, and which have formed the basis of the arrangement of the collections in the Museum.

Mineralogical  
Department.

I. Inorganic substances occur in nature in a gaseous, liquid, or solid form. With very few exceptions, it is only in the latter state that they can be conveniently preserved and exhibited in a museum, and it is to such that the term "mineral" is commonly limited. The collection, classification and exhibition of specimens of this kind is the office of the Mineralogical Department of the Museum, to which is devoted the large gallery on the first floor of the east wing of the building.

Botanical  
Department.

II. The study of the vegetable kingdom, as far as it can be illustrated by preserved specimens, is the province of the Department of Botany, which occupies the upper floor of the east wing.

Zoological  
Department.

III. In the same way the animal kingdom belongs to the department of Zoology, to which is assigned the whole of the western wing of the building.

It will thus be seen that a department of the Museum corresponds with each of the great divisions of natural objects; there is, however, a fourth department, which owes its origin to the dawning period of scientific culture, when the strange forms of animal and plant life, whose remains, found embedded in solid rocks below the surface of the earth, were not acknowledged as part of the great sequence of organic life by which the earth has been and is still peopled. The terms Zoology and Botany were then limited to the study of the existing forms of animal and plant life, and the extinct or fossil forms were associated with the minerals, rather than with their living representatives. This arrangement prevailed in the British Museum.

until the year 1857. A great step was then made by severing them from this incongruous connection, but they were placed in a separate department for which the name of "Geology" was reserved.\* The result is that there are now two distinct zoological and botanical collections in the building, one containing the remains of all the animals and plants which have lived through successive ages of the world's history from the earliest dawn of life down to close upon the present time, and the other containing only those living at the particular period in which we dwell. Notwithstanding the many objections which may be urged against this primary division of living things, it is one which prevails largely in Museums, and which, owing to the difficulty and expense of rearranging extensive collections, and reorganising the staff in charge of them, will probably be retained for some time to come.

**Geological  
Department.**

Besides the four above-mentioned departments, into which the collection is divided for the purposes of custody and administration, each of which is under the charge of an officer called "keeper" and a special staff of assistants, there is a fifth, at present under the immediate supervision of the Director, and arranged in the Central Hall, which is intended to be an introduction to all the others. The formation of this has only recently commenced, and owing to the difficulty of procuring the most illustrative specimens when required, and the time needed for their preparation and arrangement, some years must elapse before it can be completed.

**Introductory  
Collection.**

When the last-named collection is more fully developed, the whole of the specimens contained in the Museum, whether Animal, Vegetable or Mineral, will be arranged in three distinct series, each having its definite end and purpose.

**The specimens  
all arranged in  
three series.**

I. An Elementary or Introductory Series, by which the study of every group should commence, in which the leading features of the structure, and, as far as may be, the development of the various parts of some of its most typical members, are demonstrated in a clear and simple manner, and the terms used

**Introductory  
or Elementary**

\* Palæontology, or the study of ancient living beings, would have been a more appropriate designation, as Geology, the science which investigates the history of the earth, and the changes which its surface has undergone in attaining its present condition, has a much wider scope.

in describing and defining them explained by means of illustrative examples. This has been already carried out in the Department of Mineralogy, in a series of cases placed on the north or left-hand side of the gallery containing the rest of the collection. The introductory series to the zoological and botanical collections has just been referred to as under arrangement in the Central Hall.

**Exhibited  
Systematic  
Series.**

II. The Exhibited Systematic Series, in which the most important types of animal, plant, or mineral forms are shown, by means of carefully-selected and well-preserved specimens, arranged in a systematic manner, or one which exhibits, as far as may be, their natural relations to each other. Classification is an important feature in this series, which should be so complete and so arranged as to ensure that every visitor to the Museum can find without recourse to assistance from the officials every well-known and very distinct form of animal, plant or mineral, and satisfy himself about, at least, its external characters. In carrying out this ideal, great modifications must be made in practice, partly depending upon the readiness or the reverse, with which the members of different groups lend themselves for exhibition, partly upon the exigencies of space, and partly upon special circumstances which render the exhibition of the leading forms of some groups of more interest than those of another.

While the two series above mentioned have for their object the *diffusion* of scientific knowledge, the next ministers mainly to its *advancement*, and thus between them the twofold object of a National Museum of Natural History is carried out.

**Reserve or  
Study  
Systematic  
Series.**

III. The Reserve or Study Systematic Series contains all those exceedingly numerous specimens (in many groups, the great bulk of the collection in fact) showing the minute distinctions which are required for working out the problems of variation according to age, sex, season, and locality, for fixing the limits of geographical distribution, or determining the range in geological time: distinctions which, in most cases, can only be appreciated when the specimens exhibiting them are kept under such conditions as to admit of ready and close examination and comparison. It is to this part of the collection that zoologists and botanists resort to compare and name the animals and plants

collected in expeditions sent to explore unknown lands, to work out biological problems of the highest scientific importance, and generally to advance the knowledge of the science. In fact it is these reserve collections, occupying comparatively little room, kept up at comparatively little cost, and visited by comparatively few persons, which constitute, from a general scientific point of view, the most important part of the Museum, for by their means new knowledge is obtained, which, given forth to the world in the form of memoirs, books, or lectures, is ultimately diffused over a far wider area than that influenced even by the exhibited portions of the Museum. Indeed, without the means of study they afford, the order, arrangement, and power of imparting knowledge, which the exhibition galleries possess, would not be possible.

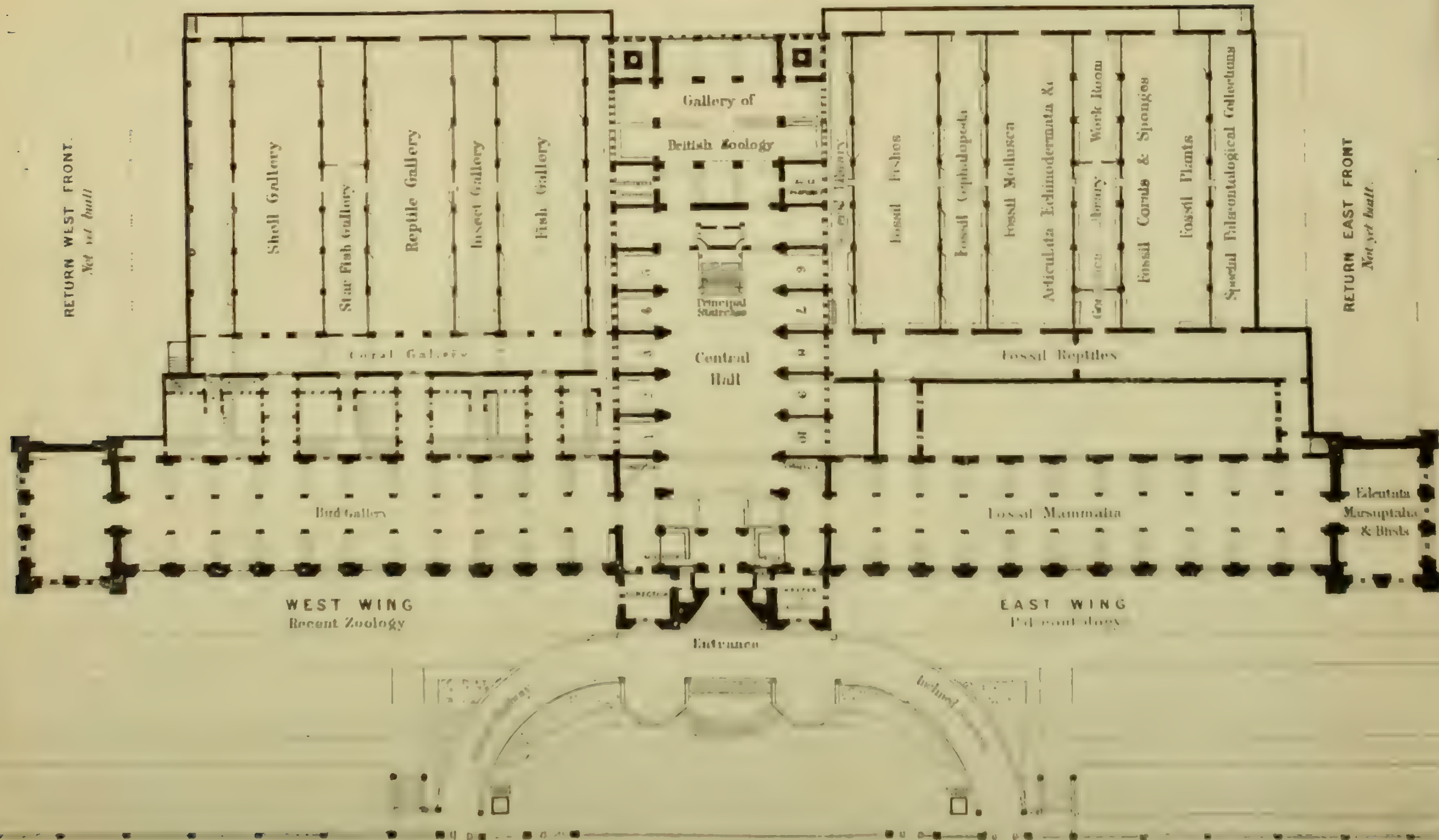
It is important to bear in mind that if the whole of such specimens as are really required for enlarging the boundaries of knowledge were displayed in the public galleries, so that each one could be distinctly seen, a museum very many times larger than the present one would not suffice to contain them; the specimens themselves would be quite inaccessible to the examination of all those capable of deriving instruction from them, and owing to the disastrous effects of exposure to light upon the greater number of preserved natural objects, would ultimately lose almost everything that now gives them value. This portion of the collection must, in fact, be treated as are the books in a library, and only used for consultation and reference by duly accredited students.\*

In some parts of the Museum the reserve collections are contained in drawers beneath the cases in which the corresponding exhibited portion is placed. This applies principally to the palaeontological specimens, the shells, and the minerals. The reserve birds and insects have special rooms devoted to them, and the extensive series of reptiles, fishes, and other animals preserved in spirit, are kept for the purposes of safety in a separate building behind the Museum. In the Botanical Department the reserve collections are kept as usual in the well-known form of an Herbarium or *Hortus siccus*.

\* For conditions as to admission and regulation, see p. 48.

# BRITISH MUSEUM (NATURAL HISTORY)

## Ground Floor.



## TOPOGRAPHICAL DESCRIPTION OF THE MUSEUM AND ITS CONTENTS.

In following this short account of the contents of the various sections of the building, the visitor must bear in mind that the principal front faces the south, and that therefore on entering the great hall he will be looking due north, with the west on his left, and the east on his right hand.

### THE CENTRAL HALL.

Immediately confronting the visitor on entering is placed a **Central Hall.** specimen of the bony framework of one of the most colossal of animals, for which space cannot at present be found in its proper locality—the Cetacean gallery. It is the skeleton of **Skeleton of** the Cachalot, or Sperm-whale (*Physeter macrocephalus*), prepared **Sperm-whale.** from an animal cast ashore near Thurso, on the north coast of Scotland, in July, 1863, on the estate of Capt. D. Macdonald, R.E., by whom it was presented to the Museum. The Sperm-whale is the principal source of supply of the sperm oil and spermaceti of commerce. The former is obtained by boiling the fat or blubber lying beneath the skin over the whole body; the latter, in a liquid state at the ordinary temperature of the living animal, is contained in cells which fill the immense cavity on the top of the skull. It feeds chiefly on Cephalopods (squid and cuttlefish), and also fish, and is widely distributed throughout the warm and temperate regions of both Atlantic and Pacific Oceans. The skeleton is that of a full-grown animal. It measures fifty feet one inch in length, but wants three of the vertebræ from the end of the tail.

In order to render this skeleton more instructive, and to bring it into relation with the elementary specimens of osteology in the adjoining bay (No. I., west side), the names of the principal parts have been attached to them. This will enable the anatomist to trace at a glance the extraordinary modification in the form and relation of its component bones which the

huge skull has undergone, and will show in the clearest manner to the least instructed visitor that the so-called fin or flipper of the whale is composed of all the same parts—shoulder, elbow, wrist, and fingers—as his own arm and hand. The hind limbs are entirely absent; but two bones are seen suspended at some distance from the spinal column, which represent the pelvic or hip bones of other animals. In some species of whales there are even traces of the thigh, knee-joint, and leg attached to this, and like it deeply buried within the body of the animal.

It is intended to place cases on the floor of the hall illustrating general laws or points of interest in Natural History which do not come appropriately within the systematic collections of the departmental series. One group already in place, shows that two forms of Crows which appear quite distinct, and which, judged by their external characters, might be held to be different species, may in a state of nature unite, and produce offspring of a perfectly intermediate character. In the same case is also a series of Goldfinches, showing a complete gradation between birds of different coloration, and which have naturally been held to be different species. Both these examples may by some naturalists be considered instances, not of crossing of distinct species, but of “dimorphism,” or the occurrence of a single species in nature under two different outward garbs; but from whatever point of view they are regarded, they illustrate the difficulty, continually increasing as knowledge increases, of defining and limiting the meaning of the term “species,” of such constant use in biology.

Another case is in preparation to show the great variation to which a species may become subject under the influence of domestication, as illustrated by choice examples of the best marked breeds of pigeons.

The bays or alcoves round the hall, five on each side, are devoted to the Introductory or Elementary Morphological Collection, designed to teach the most important points in the structure of the principal types of animal and plant life, and the terms used in describing them, all which should be known before the systematic portion of the collection can be studied with advantage. This has been called the “Index Museum,” as it was thought at one time that it would form a sort of

Group of  
Crows and  
Goldfinches.

Bays or  
Alcoves round  
the Hall.

epitome or index of the main collections in the galleries; but the name does not exactly express what it has developed into. It is really more like the general introduction, which almost always precedes the systematic portion of treatises on any branch of natural history. As mentioned before (p. 17), this collection is at present far from complete; in fact, only in its infancy; and as nothing exactly like it has been exhibited in any public museum before, it may, as its formation goes on, be subject to much modification and improvement; but it is hoped that it may ultimately serve as a guide for the formation of educational biological museums elsewhere. The space being strictly limited, the number of illustrative specimens is necessarily restricted, probably to the advantage of the student, at all events in the earlier part of his career. In examining this collection the visitor should follow each case in the usual order of reading a book, from left to right, and should carefully study all the printed explanatory labels, to which the specimens are intended to serve as illustrations.

The bays on the west side (left-hand on entering the hall) are devoted to the Vertebrated Animals, or those possessing a "backbone." In Nos. I. and II. are shown the characters of the Mammalian modifications of this type. The wall-cases of No. I. are already nearly filled with specimens showing the bony framework (internal skeleton) of Mammals.

In the first case (south side of the recess) will be seen a complete skeleton of a good example of the class—a large monkey, with all the bones separated, laid out on a tablet, and with their names affixed to them. Below it is a skeleton of the same animal articulated, and with the bones in their natural relation to each other, and also named. By examining these two specimens, a fair idea may be obtained of the general framework of the body of animals of this class. In other parts of the case are placed examples of modifications of the skeleton to suit different conditions of life.

**Bay I.  
Skeleton of  
Mammals.**

1. Man, showing a skeleton adopted for the upright position.
2. A bat, or flying mammal, in which the fore-limbs are converted into wings by the great elongation of the fingers, which support a web of skin stretched between them.
3. A sloth, in which the ends of all the limbs are reduced to

Bay I.  
Skeleton of  
Mammals.

mere hooks, by which the creature hangs back-downwards from the boughs of the trees, among which it passes its entire existence.

4. The baboon serves as an example of an animal walking on all four limbs in the "plantigrade" position, *i.e.*, with the whole of the palms of the hands and soles of the feet applied to the ground.

5. A small species of antelope shows the characteristic form of a running animal, in which the limbs perform no office but that of supporting the body on the ground. It stands on the tips of the toes of its elongated slender feet.

6. A porpoise, adapted solely for swimming in the water. The fore limbs are converted into flattened paddles, and the hind limbs are entirely absent, their function being performed by the tail. The rudimentary pelvic bones are preserved.

The rest of the case is occupied by details of the skull in some of its principal modifications. At the top are diagrams showing the structure of bone and cartilage as shown by the microscope.

In the wall-case on the opposite (north) side of the bay the outline of the osteology of mammals is continued by illustrations of the structure of the limbs. At the top of the case is a diagram showing the correspondence of the hand and the foot in its complete typical form, with the names applied by anatomists to the different bones. The series of specimens below show the principal deviations which actually occur from the typical condition, which, as will be seen, is very nearly preserved in the human hand. One interesting series shows some of the stages of modification for special purpose (specialization) by which a typical five-fingered hand becomes converted into that of the single-fingered horse, and another series ends with the hand of the ruminants, with only two fingers remaining, sometimes, but erroneously called a "cloven hoof." Similar changes are shown in the toes of the hinder extremity, illustrating the same common plan running through infinite modifications in detail, enabling the organ to perform such a variety of purposes, and to exhibit such diversity of outward appearance. The existence of this common plan is now generally thought to be due to inheritance from a common ancestor.

In the lower part of the case are examples of all the different kinds of articulations or joints by which the various bones of the body are connected together.

The central case of the bay contains a collection illustrating the principal characters of the teeth in the Mammalia. **Teeth of Mammals.** Its inspection should commence at the north-east corner, where the visitor will find himself, after completing the survey of the osteological specimens in the wall-cases. In the first division specimens are placed showing the general characters of teeth, their form, the different tissues of which they are composed, the two great types of dentition in mammals, *homodont* and *heterodont*, the nomenclature and homologies of the different teeth, and their development and succession. The principal modification of teeth according to their function are next shown, by examples of forms adapted for fish-eating, flesh-eating, insect-eating, grass-eating, &c. The remainder of the case is taken up by select examples of the dentition of all the different families of mammals arranged in systematic order, prepared so as to display not only the shape of the crowns, but also the number and character of the roots by which they are implanted.

Bay No. II. contains, in its first wall-case (the only one yet occupied), illustrations of the outer covering or integument and its modifications in the class of Mammals, divided into the following sections:

**Bay II.**  
**Integument**  
**of Mammals.**

1. Expansion of skin to aid in locomotion, as the webs between the fingers of swimming and flying animals, the parachutes of flying animals.

2. The development of true bony plates in the skin, found among mammals only in the Armadillos and their allies. The cast of a section of the tail of a great extinct species (*Glyptodon*) shows well a bony external as well as internal skeleton.

3. The outer covering modified into true scales, much resembling in structure the nails of the human hand. This occurs in only one family of mammals, the Pangolins or *Manidae*.

4. Hair in various forms, including bristles and spines. A stuffed specimen of a porcupine at the bottom of the case affords a good illustration of a spiny covering. The two kinds of hair composing the external clothing of most mammals, the long, stiffer outer hair, and the short, soft under fur, are shown by various examples.

5. The nasal horns of the rhinoceros, shown by sections to consist of a solid mass of hair-like epidermic fibres.

6. The horns of oxen, goats and antelopes, consisting of a hollow conical sheath of horn, covering a permanent projection of the frontal bone (the horn-core).

7. The antlers of deer, solid, bony, generally branched, projections, covered during growth with soft vascular hairy skin, shed and renewed annually.

The other systems of organs of the class will occupy the remainder of this bay.

Bay No. III. is devoted to the class of Birds. In the first wall-case the principal facts in the osteology of the class are shown. Sections of bones exhibit the large air cavities within; a complete skeleton of an eagle, with the bones separated and named, and mounted skeletons of the ostrich, penguin, pelican, vulture, fowl, &c., show the chief modifications of the skeleton. The apteryx shows the smallest, and the frigate bird the largest bones of the wing, the correspondence of which can be readily traced by means of the labels attached to them. The under surface of the skulls of various birds are shown with the different bones coloured to indicate their limits and relations, followed by a series of the different types of sternum or breast-bone.

The table-case in the middle of the bay contains illustrations of the external characters, the beak, the feathers and the tail, as well as of the fore and hind limbs, or wings and feet.

Bays IV. and V. completing the west side of the hall, will, in a similar manner, show the most important points in the structure of reptiles and fishes.

Of the bays on the east side of the hall, No. VI. is for the illustrations of the articulated classes, Crustacea, Arachnida, Myriapoda and Insecta, as well as of the Annulosa and Vermes, No. VII. for the Mollusca, Echinodermata, Cœlenterata, Porifera and Protozoa; and the remaining three, VIII., IX., and X., for the morphology of the vegetable kingdom: the first containing the Cryptogams, the next the Gymnosperms and the Monocotyledons, and the last the Dicotyledons. By this arrangement the lowest or simplest forms of animal or plant life, those on the border land, as it were, of the two kingdoms, will be brought into contact, and at the two ends of the series, in Bays I. and X., will be found the groups which show in the highest degree the special attributes of the division to which they belong.

Bay III.  
General  
structure  
of Birds.

Contents of  
remaining  
Bays not  
completed.

## GALLERY OF BRITISH ZOOLOGY.

At the north end of the Central Hall, with entrances on either side of the great staircase, is a large room containing a collection of animals of all classes, which are, or have been in recent times, found in the British Isles, either as permanent residents, or as regular migrants or occasional visitors. The animal inhabitants of any country or district are collectively termed its "*fauna*." Our country in this respect belongs to the great zoographical region called Palearctic, embracing all Europe, the north of Africa, and the western and northern portion of Asia. As in the case of all islands, the species belonging to groups whose powers of locomotion are limited to the land or fresh water, are not numerous compared with those inhabiting large continental tracks. Their numbers can only increase under very exceptional circumstances, but, on the contrary, have a tendency to diminish, as the growth of human population and increase of the area of cultivated land gradually circumscribe their native haunts. In this way, the brown bear, the wolf, the beaver and the wild boar have all disappeared from Britain within the historic period, and others, as the badger, marten and wild-cat, with difficulty maintain a somewhat precarious existence. These have all been originally derived from the mainland of Europe, probably before the formation of the channel which now makes our country an island. The wider and older channel which separates Ireland from Great Britain has proved a greater barrier to the emigration of animal life than that between the latter and the Continent, many species (as the polecat, wild-cat, mole, squirrel, dormouse, harvest-mouse, water and land vole, common hare, roedeer, as well as snakes and toads) never having crossed it, unless by aid of human agency.

Gallery of  
British  
Zoology.

On the other hand, those species that have the power of travelling through the air or traversing the ocean are far less fixed in their habitat, and thus the list of so-called "British birds" receives accessions from time to time from stragglers which find their way from the European continent or even across the Atlantic, and doubts as to the authenticity of some of the

recorded occurrences make the list rather a vague and uncertain one. The constitution of the marine fauna in the same way is continually liable to undergo fluctuations.

Slight but permanent variations from the continental type can be recognised in a few of our indigenous species, but the only vertebrated animals undoubtedly peculiar to the British Isles are the common red grouse (*Lagopus scoticus*), and several species of fresh-water fishes (fifteen are enumerated by Dr. Günther), mostly belonging to the genus *Salmo*. Some of these have an extremely local distribution, being only found in some small groups of mountain lakes. Many species, or at all events, well-marked varieties of insects, and a few land and fresh-water molluscs, have at present been only found within the limits of our islands.

#### STAIRCASE.

Statue of  
Darwin.

On the first landing of the great staircase, facing the centre of the hall, is placed the seated marble statue of CHARLES DARWIN (b. 1809, d. 1882), to whose labours the study of natural history owes so vast an impulse. The statue was executed by Mr. E. Boehm, R.A., as part of the "Darwin Memorial" raised by public subscription. It was unveiled and placed under the care of the Trustees of the Museum on the 9th of June, 1885, when an address was delivered on behalf of the Memorial Committee, by the Chairman, Professor Huxley, P.R.S., to which His Royal Highness the Prince of Wales, as representing the Trustees, replied.

Statue of  
Banks.

Above the first landing the staircase divides into two flights, each leading to one of the corridors which flank the west and east sides of the hall, and by which access is gained to the galleries of the first floor of the building. At the northern end of these corridors a staircase from each, raised on an arch which spans the hall, join to form a central flight leading to the second or uppermost floor. On the landing at the top of this flight is placed a marble statue by Chantry of SIR JOSEPH BANKS (b. 1743, d. 1820), the munificent patron of science and scientific men, who for forty-one years presided over the Royal Society, and was an active Trustee of the Museum. His splendid botanical

collections are preserved in the adjoining gallery, but his unrivalled library of works on natural history, also bequeathed to the Museum, remains in the old building at Bloomsbury, in the entrance hall of which the statue, erected by public subscription in 1826, stood, until it was removed to its present situation by direction of the Trustees in the year 1886.

In the east corridor is placed at present the collection of humming-birds (*Trochilidæ*) arranged and mounted by the late Mr. John Gould, and purchased by the Museum after his death in 1881. The resplendent colours and infinite varieties of form presented by these fairy-like objects must always excite feelings of admiration and wonder in all who gaze upon them. A special guide-book, pointing out the most interesting features of this collection, with a general account of the geographical distribution and mode of life of the humming-birds, has been published by the Trustees.\*

Gould Collection of Humming-Birds.

## WEST WING.

The whole of the west wing of the building is devoted to the collections of recent Zoology.

### (A) GROUND FLOOR.

The ground floor is entered from the west side (left hand) of the Central Hall, near the main entrance of the building. The long gallery extending the entire length of the front of the wing is assigned to the exhibited collection of birds, the study series of the same group, being kept in cabinets in a room behind.

Bird Gallery.

The wall-cases contain mounted specimens of all the principal species arranged in systematic order, beginning with the vultures, on the left hand on entering, and ending with the penguins on the right. The arrangement adopted is that of the Catalogue, now in course of publication, in a series of octavo volumes.

Systematic Series in Wall-cases.

In the middle of the room and in the spaces between the wall-cases are placed various isolated groups of particular interest,

\* 'A guide to the Gould Collection of Humming-birds.' Price twopence.

**Groups of  
British Birds  
and Nests.**

among which the visitor will doubtless be attracted by those showing the nesting habits of our best-known British birds. The great value of these groups consists in their absolute truthfulness. The surroundings are not selected by chance for imagination, but in every case are carefully-executed reproductions of those that were present round the individual nest. When it has been possible, the actual rocks, trees or grass, have been preserved, or where these were of a perishable nature they were accurately modelled from nature. Far more care has also been taken in preserving the natural form and characteristic attitude of the birds than was formerly the case in Museums, as a large number of the old specimens in the wall-cases unhappily testify. This beautiful and instructive series is still in process of formation.

In the "Pavilion," or room at the further end of the gallery, are placed the specimens of the peculiar division of birds, called *Ratitæ*, from the flat or raft-like character of the breast-bone, and which, owing to the rudimentary character of their wings, have not the power of raising themselves off the ground in flight. They include the largest existing birds, the ostriches, emus and cassowaries, as well as the small kiwi or apteryx of New Zealand.

**Coral Gallery.**

Parallel with the bird gallery to the north side (right on entering), and approached by several passages, is a long narrow gallery containing the collection of sponges and of corals and allied forms. Among the former, the beautiful silicious *Euplectella* (Venus' flower basket) the *Hyalonema*, or glass rope sponge, and the gigantic *Rhaphiophora* (Neptune's goblet) are conspicuous. The corals which present immense varieties of form, and also of colour, are the dried hard calcareous supporting part, or skeleton, of creatures allied to the well-known sea-anemones of our coasts.

Approached through the Coral Gallery, and running backwards at right angles with it, are a number of galleries containing other portions of the zoological collections.

**Fish Gallery.**

I. A large gallery nearest to the Central Hall contains the exhibited portion of the collection of Fishes, the greater number of which, preserved in spirit, are placed for safety in a detached building behind the Museum, where they are available for study

under suitable regulations. The gallery contains stuffed examples and skeletons of all the most remarkable members of the class, the peculiarities of which will be pointed out in a special guide-book which will shortly be published.

The largest specimen of the class, placed near the centre of the room, is a full-grown example of the Great Basking Shark (*Selache maxima*) which was captured on the 2nd of March, 1875, near Shanklin, in the Isle of Wight. Its length is twenty-eight feet, but as the minute size of the teeth indicate, it is a comparatively harmless animal.

On the east side of the room (left on entering) will be found the other Sharks and their allies, the Rays and Skates, including the singular "Hammer Headed" Shark and the Saw-fish (*Pristis*) which has a long projecting flattened snout, with a row of teeth arranged something like those of a saw on each side. In the middle of the further end of the room is a large specimen of one of the most remarkable of fish, at least in external form, the Sun-fish (*Orthogoriscus mola*). In the wall-cases of the right hand (or east side) of the gallery are the fishes with completely osseous skeletons. The largest of these, including several specimens of Sword-fishes, the gigantic Sea-Perch (*Serranus gigas*) and others, are placed in separate glazed cases in the body of the room.

II. A small gallery is devoted to the group of ARTICULATA or Invertebrated animals with jointed limbs, as Insects, Spiders, Myriapods, and Crustacea. In the wall-cases are many curious examples of nests, and of specimens illustrating the ravages of destructive insects, and also some of their economic products. Selected examples of the different groups of insects are exhibited in systematic order in the table-cases, so as to give the visitor who studies them a good general idea of all the most interesting forms and of their classification. Unfortunately, it is impossible to exhibit many of the most beautiful and rare species, owing to the deteriorating effects of continued exposure to light upon their colours. The main collection of insects is, on this account, and because of the enormous space it would otherwise occupy, kept in cabinets in the "insect-room" on the basement floor, to which students can have access under the regulations which will be found at the end of this guide.

**Insect Gallery.**

Reptile  
Gallery.

III. A large gallery containing the collection of stuffed specimens and skeletons of Reptiles, including crocodiles, lizards, snakes and tortoises. As in the case with the fishes, a large number of the animals of this class are necessarily preserved in spirit, and therefore not suitable subjects for exhibition. The gallery contains examples of all the forms of general interest, for an account of which the visitor is referred to the special guide.\*

Star-fish  
Gallery.

IV. A small gallery containing the series of ECHINODERMATA (sea urchins, star-fishes, Crinoids, &c.) and worms.

Shell Gallery.

V. A large gallery devoted to the extensive division of MOLLUSCA, or soft-bodied Invertebrata, the exhibition of which it is however mainly restricted to their shells. In some cases the form of the animal itself is shown either by preparations in spirit or by means of models. Near the entrance to the gallery are placed some small table-cases, containing series of the eggs of Mollusca and of their opercula or lid by means of which the opening or mouth of the shell is closed in some forms; also specimens illustrating the formation of pearls, and other special points of interest connected with the group.

Special guide-books to all these galleries are in preparation.

#### GALLERY OF CETACEA.

Cetacea or  
Whale  
Gallery.

Approached by a staircase, leading from the last (or westernmost) of the passages which connect the bird gallery with the coral gallery, is a room in the basement, in which the specimens of whale-like animals, for which, on account of their large size, no other place could be found in the portion of the Museum galleries already completed, are placed. The room has, unfortunately, the disadvantage of being not well lighted, and of being intersected by massive columns, which interfere with the complete view of any of the larger skeletons; nevertheless the specimens will be safely preserved in it, until the erection of the west front will afford them better accommodation, and visitors can, in the meantime with very little difficulty study most of the important peculiarities of these gigantic and very interesting members of the Animal Kingdom.

As it is almost impracticable to preserve the skins of the larger

\* 'Guide to the Gallery of Reptiles.' Price twopence.

species of whales, owing to the quantity of oil with which they are saturated, the exhibition of the characters of these animals is chiefly limited to their skeletons, assisted by drawings of their external forms. The general appearance of many of the smaller kinds is, however, shown by stuffed specimens and coloured casts. A general account of the structure and classification of the Cetacea, with special reference to those exhibited in this gallery, will be found at the end of the Guide to the Galleries of Mammalia.\*

On the left side of the door, on entering, near the window, is a case containing a stuffed specimen, skeleton, and several skulls of the very curious fresh-water Dolphin of the rivers of India (*Platanista gangetica*), and in the next case the peculiar Dolphin of the river Amazon (*Inia geoffrensis*). Among the specimens on the same side of the room, one of the most interesting, on account of its remarkable dentition, is the Narwhal or Sea-  
 Unicorn. It has only two teeth, which lie horizontally in the upper jaw. In the female both remain permanently concealed within the bone of the jaw, so that this sex is practically toothless, but in the male, while the right tooth remains similarly concealed and abortive (as shown in the specimen, by removal of part of the bone which covered it), the left is immensely developed, attaining a length equal to that of half the entire animal, projecting horizontally from the head in the form of a long, straight, tapering and pointed tusk, spirally grooved on the surface. In some very rare cases both teeth are fully developed, as in the fine skull exhibited near the skeletons.

Most of the largest Cetacea belong to the group called "Whalebone Whales," in which a series of horny plates called  
 "baleen," or more familiarly "whalebone," grow from the palate in place of teeth, and serve to strain the water taken into the mouth from the small marine animals on which the whales subsist. A fine representative of this group is the very perfect skeleton of the Common Rorqual or Fin-whale (*Balænoptera musculus*) near the further end of the middle of the room. It is sixty-eight feet long, and was captured in 1882 in the Moray Firth, Scotland. The flukes of the tail and dorsal fin are pre-

\* 'Guide to the Galleries of Mammalia' (Mammalian, Osteological and Cetacean) in the Department of Zoology. Price fourpence.

served with the skeleton and suspended in their natural position, and the small pelvic bones and a rudimentary nodule, representing the femur or thigh bone, the only trace of the hind leg of this gigantic animal, are also preserved. Beyond this skeleton is a skull of the Greenland Right-Whale (*Balæna mysticetus*) which yields most of the "whalebone" of commerce, and also a small wooden model of the animal, of the scale of one inch to the foot.

### FIRST FLOOR.

The upper floors of the wings of the Museum consist only of single galleries extending along the whole front of the building; the galleries which run backwards on the ground floor containing only a single storey.

The MAMMALIAN GALLERY is entered from the western corridor of the Central Hall. It contains the series of stuffed specimens of animals of this class, with the exception of the *Cetacea* and the *Sirenia*. Skeletons of the most important types are incorporated with this series. The collection of antlers of the family of Deer are ranged along the top of the cases.

The contents of this gallery and the next are described in considerable detail in a special guide, and therefore do not require further notice here.

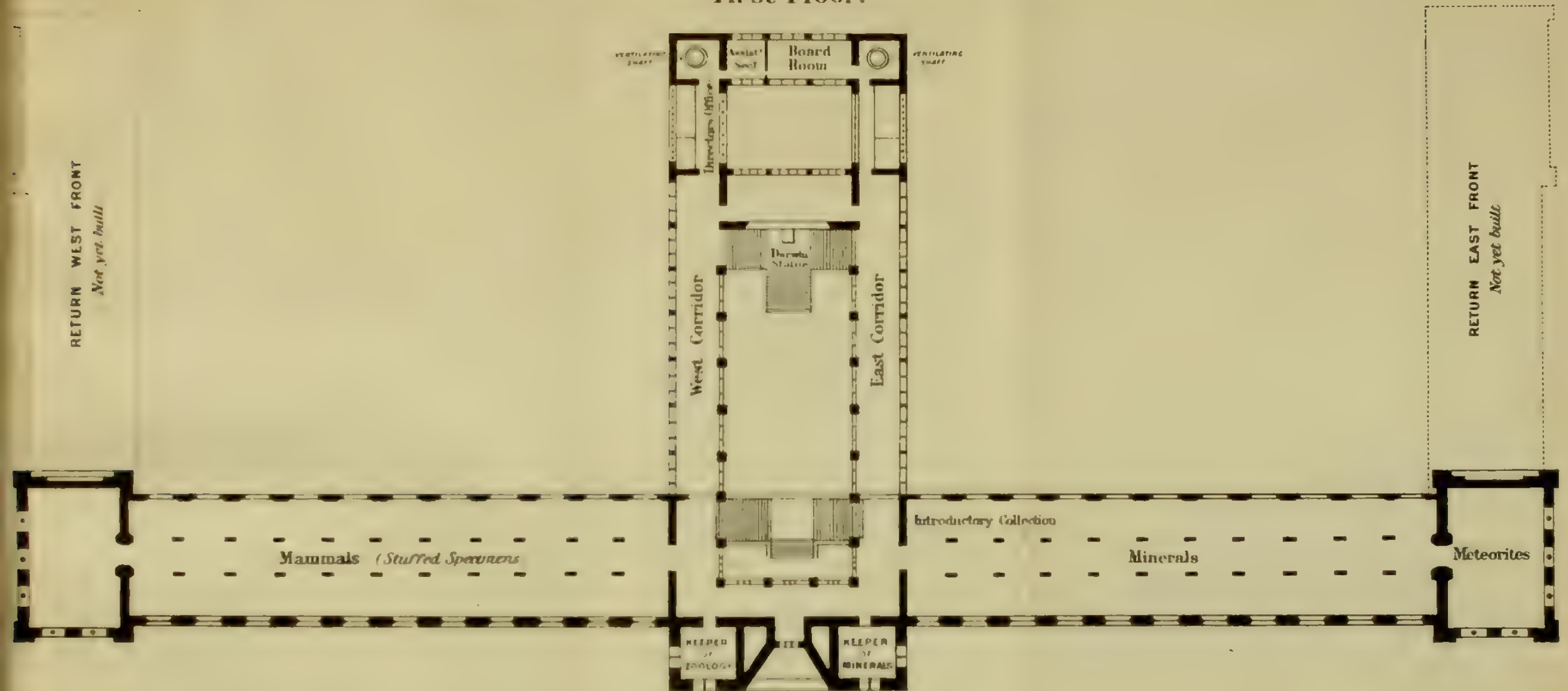
### SECOND FLOOR.

The OSTEOLOGICAL GALLERY is devoted to the skeletons and skulls of the Mammalia. The stuffed *Sirenia* (Dugongs and Manatees) and the collection of horns of oxen, antelopes and sheep are also placed in this gallery. The series commences (on the left hand on entering), by a male and female human skeleton, followed by a selection of skulls showing the different modifications of the cranial and facial bones in the various races of mankind. Along the centre of the gallery is ranged a series of the skeletons of the larger land animals—chiefly various species of oxen and buffaloes, rhinoceros and elephants.\*

\* See 'Guide to the Galleries of Mammalia' (Mammalian, Osteological and Cetacean) in the Department of Zoology. Price fourpence.

# BRITISH MUSEUM (NATURAL HISTORY).

## First Floor.



## Second Floor.



Scale of Feet

10 100  
1 in. = 100 feet

1  
2  
3

4  
5  
6

## EAST WING.

## GROUND FLOOR.

The ground floor of this wing consists, as on the other side of the building, of a gallery running east and west the whole length of the wing in front, of a smaller parallel gallery behind it, and leading from the latter, a series of galleries running north and south. The whole of this floor is occupied by the collection of the remains of animals and plants which no longer exist in a living state upon the earth. They are arranged mainly upon zoological principles, that is, the forms which are supposed to have natural affinities are placed together, but within some of the great divisions thus mapped out, especially of the Invertebrata and plants it has been found convenient, to adopt a stratigraphical or even geographical grouping, the fossils of different geological formations being kept apart, and those of the British Isles separated from those of foreign localities.

As this portion of the Museum is fully described in the Illustrated Guide\* it will only be necessary to give a brief account of it here.

The large front gallery first entered from the hall is entirely devoted to the remains of Mammalia. Along the centre are placed a number of large and striking objects, of too great a size to be contained in the wall-cases. The first is a nearly complete skeleton of the American mastodon, an animal closely allied to the elephant. Beyond this is the skull of an elephant (*Elephas ganesa*) remarkable for the immense length of its tusks, from the Si valik Hills of India, and another on the European mammoth (*Elephas primigenius*), with huge curved tusks in a perfect state of preservation, found in the brick earth at Ilford in Essex. Then follow skeletons of the great extinct Irish Elk (*Megaceros giganteus*), male and female, of the Rhytina, or sea cow of the North Pacific, only exterminated towards the close of the last century, and of the South American gigantic sloth-like Megatherium and Mylodon.

Remains of  
extinct  
Mammals.

The wall-cases on the south side (right on entering) contain

\* 'Guide to the Exhibition Galleries of the Department of Geology and Palæontology,' 1886. Price fourpence.

Fossil remains  
of Man.

remains of Man found under such circumstances as may justify the appellation of "fossil," in caves or pleistocene deposits, associated with the bones of animals either completely or locally extinct. Then follow in systematic order, the bones and teeth of the other Primates, the Carnivora, Ungulata and Sirenia.

The greater part of the north side of the gallery is devoted to the exhibition of a magnificent collection of the remains of Proboscidea (Dinotheria, Mastodons and elephants), including the fine series from the sub-Himalayan Mountains collected by Cautley and Falconer. In the pavilion at the end of the gallery are the Edentata, nearly all from South America, the Marsupialia from Australia, and a most interesting series of small Mammalian remains from the Purbeck beds of the south of England. This room also contains the fossil remains of birds, including the famous "Lizard Bird" (*Archæopteryx*) of the Solenhofen beds, in Bavaria, and the gigantic Moa or Dinornis from New Zealand.

Extinct  
Reptiles.

The long gallery, north of the mammalian saloon contains a fine assemblage of Reptilian remains. The south side is devoted to the great sea-lizards (*Plesiosauria* and *Ichthyosauria*), including the collection described and figured in Mr. Hawkins's Book of the Great Sea-Dragons. Ranged in the cases on the north side are remains of the gigantic Dinosaurians, which far exceeded in size any other land animals. At the eastern end of the gallery are the *Pterosauria*, or Flying Reptiles.

Extinct  
Fishes.

Of the galleries leading backwards from this, the one nearest the centre of the building is devoted to the collection of fossil Fishes, an account of which has been published in a special guide.\* The next contains the Cephalopods, the third the remaining Molluscs, Echinoderms, Annelids and Crustacea, and fourth the Corals, Sponges, Protozoa and fossil Plants. In these two last galleries the British specimens are placed in the table-cases, and those of foreign origin in the cases round the walls. The fifth gallery is set apart for the reception of certain special collections of historical interest, which, from the circumstances under which they were formed, or under which they came into possession of the Museum, or from their containing a large number of types described and figured in standard monographs, it

Extinct  
Invertebrates  
and Plants.

\* 'Guide to the Collection of Fossil Fishes in the Department of Geology and Palæontology,' 1885. Price threepence.

has not been thought desirable to break up and disperse among the general collection. The principal of these are, the original collection formed by William Smith, the pioneer of geology in this country, the Searles Wood Collection of Crag Mollusca, the Edwards Collection of Eocene Mollusca, the Davidson Collection of Brachiopoda, the types of Sowerby's 'Mineral Conchology,' and lastly, but not least in interest, the specimens which, belonging to the collection of Sir Hans Sloane, form the nucleus of the whole Museum. **Historical Collections.**

## FIRST FLOOR.

The one large gallery on this floor, entered from the north end of the east corridor of the hall, contains the collection of Minerals, which in extent and arrangement is unsurpassed by any in the world. **Gallery of Minerals.**

The value of this collection to the intelligent visitor is greatly enhanced by the publication of an "Introduction to the Study of Minerals," as a part of the general guide to the gallery,\* and by the arrangement of a series of specimens in four window-cases on the left-hand side of the gallery on entering, illustrative of the statements in this Introduction. It is particularly recommended that this series should be carefully studied before the attention is directed to the large collection of minerals arranged in systematic order which fill the table-cases of the body of the room.

In the pavilion at the end of the gallery will be found certain mineral specimens too large for exhibition in the table-cases of the gallery, and a case containing a series of specimens arranged by Mr. Ruskin to illustrate some of the forms assumed by native silica.†

Here also is arranged the large collection of Meteorites, the completeness of which is one of the features of this Department of the Museum and which is described in a special guide.‡ **Meteorites.**

\* 'A Guide to the Mineral Gallery of the British Museum (Natural History), with an Introduction to the study of Minerals.' Price threepence.

† A Descriptive Catalogue of the specimens in this case has been printed by Mr. Ruskin, and can be obtained at the attendant in the gallery.

‡ 'An Introduction to the Study of Meteorites, with a list of the Meteorites represented in the Collection, 1886.' Price twopence.

In addition to the two guides mentioned above, there is published for the use of the student of mineralogy a separate and complete Index to the names and synonyms of all the mineral species and varieties represented in the Collection.\*

## SECOND FLOOR.

The upper floor of the East wing is devoted entirely to the Department of Botany.

### Botanical Gallery.

The Collections of this Department consist of two portions, the one set apart for the use of persons engaged in the scientific study of plants; the other open to the public and consisting of specimens suitable for exhibition, and intended to illustrate the various groups of the Vegetable Kingdom, and the broad facts on which the Natural System of the classification of plants is based.

### Herbarium.

The portion devoted to the use of the scientific student consists mainly of the great Herbarium. This is a collection of plants, fastened on single sheets of folio paper, representing, as far as it has been possible to obtain them, first, every species of plant living on the earth, and then the distribution of each species on the surface of the earth. The various species are collected under their respective genera, and these are arranged in their Natural Orders, and the whole are systematically classified, beginning with the most highly organised (the *Ranunculaceæ*), and going down to the lowest members of the Vegetable Kingdom (the *Fungi*).

### Historical Collections in the Her- barium.

The foundation of this great Herbarium was the collection of Sir Joseph Banks, consisting of the plants obtained by himself and Dr. Solander in their voyage round the world with Captain Cook, and of numerous series from all quarters of the globe presented to him or purchased by him. He bequeathed all his botanical collections to the Trustees of the British Museum in 1820, reserving to Robert Brown, in whose charge they had been for years, the use of them during his lifetime. Mr. Brown transferred them to the Trustees of the Museum in 1827, and was appointed the first Keeper of the Department. The yearly

### Sir Joseph Banks.

\* 'The Student's Index to the Collection of Minerals.' Price twopence.

additions since 1827 have been so extensive that the Banksian Collections form now but a small proportion of the great Herbarium. In a brief notice it is impossible to give a correct idea of the richness of this Herbarium. Among the principal collections contained in it may be mentioned those of Clayton, Roemer, Miller, Brown, Bowie and Cunningham, Gardner, Nuttall, Horsfield, König, Martin, Masson, Wilson, Hampe, Seemann, Welwitsch, Salt, and Miers. It includes also authentic specimens received from Loureiro, Gronovius, Tournefort, Jacquin, Aublet, Ruiz and Pavon, and Perrottet.

The cellular plants are accommodated in a large room in the Central Tower approached by a staircase, the entrance to which is on the left side of the statue of Sir Joseph Banks. The Mosses include the collections of Wilson, Hampe, Drummond and Spruce; the Liverworts contain the herbarium of Hampe; with the Lichens are incorporated collections made by Carroll, Spruce and Weddell. The Algæ contain the herbarium of Prof. Dickie, the Diatomaceæ those of Kützing and Greville, and collections from Harvey, Robert Brown, Shuttleworth, &c. The extensive series of Fungi, including collections from various botanists, has just been increased by the bequest of the valuable herbarium of the late C. E. Broome, Esq.

**Cellular  
Plants.**

There is a separate Herbarium of British plants, based on the collections formed by Sowerby in the preparation of his great work, 'English Botany.' This is, perhaps, the largest and most interesting public Herbarium of British plants and its value is constantly increasing by additions from botanists who make the British Flora their special study.

**Herbarium of  
British  
Plants.**

The extensive Herbarium formed by Sir Hans Sloane became the property of the nation in 1753, along with his other collections. The plants gathered by himself in Jamaica form the nucleus of this Herbarium, and added to them are the collections of Petiver, Buddle, Plukenet, Kaempfer, Kamel, Merrett, Boerhaave, Vaillant, Banister, and others. According to the practice of the time these plants are preserved in large folio volumes, of which there are altogether 310. This collection had been placed in the library of the British Museum, and remained there until the establishment of the Department of Botany, when it was transferred to the care of Mr. Brown. The plants are well

**Sir Hans  
Sloane's  
Herbarium.**

preserved, and are catalogued in a copy of Ray's '*Historia Plantarum*,' so that they can be easily consulted.

The collections formed by Hermann in Ceylon, from which Linnaeus prepared his '*Flora Zeylanica*,' are preserved in five volumes, four containing plants, and the fifth consisting of drawings.

**Ray's  
Collection.**

The department also contains the singularly interesting and valuable collection of plants gathered in 1663 by John Ray in his travels in Europe, a catalogue of which was published in his account of the journey in 1673.

In these various Herbaria the Museum possesses an unrivalled series of historical collections from the middle of the seventeenth century to the present time.

**Collection of  
Fruits, Seeds,  
and Woods.**

Besides the collection of dried plants forming the Herbarium, there are two allied collections arranged in the same gallery in parallel series. The one is the collection of fruits and seeds occupying the table cabinets in the centre of the gallery, and the other the collection of woods placed in the smaller cabinets in the centre of each bay. The position of the cabinets has permitted the arrangement of the specimens belonging to these two collections in close proximity to the Natural Orders in the great Herbarium, to which they belong. The student can thus easily command the specimens in the three collections in the prosecution of his investigations. Nor is the facility of reference confined to the mounted and finally arranged specimens, for the method in which the unmounted collections are arranged and temporarily stored in small rooms behind the great Herbarium, provides for their ready consultation, even before they are incorporated in the Herbarium itself.

**Library.**

The student receives assistance in his investigations from the extensive Library of the Department, and from a large collection of plates and drawings of plants systematically arranged in the same order as the plants in the Herbarium.

**Original  
Drawings of  
Plants and  
Manuscripts.**

The collection of original drawings comprises specimens of the work of the principal botanical artists, such as Ehret, J. Miller, Nodder, Aubriet, Sidney Parkinson, J. R. & G. Forster, Jacquin, Masson, Sowerby, Fitch, Schleiden, W. G. Smith, and especially Francis and Ferdinand Bauer.

The department possesses also many valuable manuscripts, such as those of Robert Brown, Solander, Ruiz and Pavon,

König, Salisbury, and Miers, referring to plants now in the Herbarium, on which these botanists have worked.

The arrangement of the collections in the public gallery is **Public Gallery.** now in progress, but is not sufficiently advanced to permit the preparation of a guide to the cases. A general account of the plan being followed in this arrangement, and of the principal specimens, is all that can now be attempted.

The natural system of classification, according to which the plants in the Herbarium are arranged, is followed in the exhibition cases in the public gallery. A half case next to the door on the left side is devoted to a series of original drawings and specimens exhibiting the principal fungal parasites of cultivated plants. The series of specimens begins in the next case with the Natural Order *Ranunculaceæ*, and the principal orders are represented in this and the following cases by dried specimens of the plants themselves, coloured drawings, fruits, and prepared sections of the woods. Diagrams are employed to emphasise the characters on which the grouping is based. The use of the same colour for the homologous structures throughout the diagrams readily conveys to the eye the points of agreement and difference on which the classification rests. The geological history of each natural order is indicated on a table of the earth's strata; and its present distribution on the surface of the earth is given on a small map of the world. Descriptive labels give particular information respecting each specimen.

Dicotyledonous plants occupy three cases on the left side of the gallery, and are followed by the Monocotyledonous Orders, which fill the last case on the same side, the two half cases at the end of the gallery, and the first case returning towards the door. The Gymnosperms are placed in the next case. Then follow the Cryptogams, a case being devoted to the higher vascular Orders, and another to the lower division of cellular plants. The series closes with an interesting collection of models of the larger British *Fungi* prepared by Sowerby when he was engaged on his work on this group of plants.

The larger specimens are placed in the tall cases in the centre of the gallery following the order as far as possible of the specimens in the wall-cases. The right side of the first centre case is filled with specimens of Dicotyledonous plants, such as **Large Specimens in Central cases.**

sections of White Oak and Walnut from Canada, of *Eucalyptus*, *Acacia*, *Laportea*, and other trees from Australia, of the Cork Oak grown in Chelsea Gardens, trunks of *Ficus* and *Carallia* with aerial roots, sent from Ceylon by Dr. Trimen, stems of *Bombax* and *Xanthoxylon* with conical prickles, and of *Flacourtia* and *Gleditschia* with branching thorns, and anomalous stems of *Bauhinia*, *Entada*, and *Dypsis*. The next two centre cases are filled with Monocotyledonous plants, among which in the first case are stems and sections of the Date palm, several species of *Areca*, sections and fruit of the Palmyra palm, stem and fruit of the Sago palm, and a large spike of the allied *Raphia* from Madagascar. In the next case are stems of the Wax palm, sections and fruit of the Cocoa-nut palm, and of the Seychelles palm. The remainder of this case is occupied with specimens of the Dragon-tree of Madeira, of the Grass-trees and Black-boys of Australia, of *Vellozia* from Brazil, of *Papyrus* from Egypt, of Bamboo and Sugar-cane. On the other side of this case specimens of Gymnosperms will be found, comprising a large plant of *Welwitschia* from Africa, sections of *Araucaria* from Norfolk Island, of Cedar grown in Chelsea Gardens, and stems and sections of several species of *Cycadeæ*. The next two cases contain specimens of Tree-ferns, among which are a large stem of *Dicksonia*, clothed with aerial roots, from New Zealand, stems of species of *Alsophila* and *Cyathea* from various tropical regions, and of *Hemitelia* from South Africa.

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# STAFF OF THE NATURAL HISTORY BRANCH OF THE BRITISH MUSEUM.



|                                       |    |    |    |    |                             |
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| <i>Clerk in Director's Office</i>     | .. | .. | .. | .. | J. F. ISAAC.                |
| <i>Assistant in General Library</i>   | .. | .. | .. | .. | B. B. WOODWARD.             |

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# BRITISH MUSEUM (NATURAL HISTORY),

CROMWELL ROAD, LONDON, S.W.

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## CATALOGUES OF THE COLLECTIONS.

REPORT on the Zoological Collections made in the Indo-Pacific Ocean during the voyage of H.M.S. "Alert," 1881-2. 54 Plates. 1884, 8vo. 1*l.* 10*s.*

### MAMMALS.

Catalogue of Carnivorous, Pachydermatous, and Edentate Mammalia. 47 Woodcuts. 1869, 8vo. 6*s.* 6*d.*

Catalogue of Ruminant Mammalia (*Pecora*, Linnæus). 4 Plates. 1872, 8vo. 3*s.* 6*d.*

Hand-List of the Edentate, Thick-skinned, and Ruminant Mammals. 41 Plates of Skulls, &c. 1873, 8vo. 12*s.*

List of the Specimens of Cetacea in the Zoological Department. 1885, 8vo. 1*s.* 6*d.*

Hand-List of Seals, Morses, Sea-Lions, and Sea-Bears. 30 Plates of Skulls. 1874, 8vo. 12*s.* 6*d.*

Catalogue of Monkeys, Lemurs, and Fruit-eating Bats. 21 Woodcuts. 1870, 8vo. 4*s.*

Catalogue of the Bones of Mammalia. 1862, 8vo. 5*s.*

### BIRDS.

Catalogue of the Birds. Vol. II.-XI., 1875-86, 8vo. Woodcuts and coloured Plates. 14*s.* to 26*s.* a volume.

## REPTILES.

Catalogue of the Lizards. Second edition. 2 vol., 8vo. 56 Plates. 1885, 20s. each.

Catalogue of the Batrachia Salientia S. Ecaudata. Second edition. Woodcuts and 30 Plates. 1882, 8vo. 1l. 10s.

Catalogue of the Batrachia Gradientia S. Caudata, and Batrachia Apoda. Second edition. 9 Plates. 1882, 8vo. 9s.

## FISHES.

Catalogue of the Fishes. Vol. I.-VIII., 1859-70, 8vo. Woodcuts. 7s. to 10s. 6d. a volume.

## INSECTS.

*Hymenopterous Insects.*

Descriptions of New Species of Hymenoptera. 1879, 8vo. 10s.

List of Hymenoptera, with descriptions and figures of the Typical Specimens. Vol. I., Tenthredinidæ and Siricidæ. 16 coloured Plates. 1882, 8vo. 1l. 18s.

*Lepidopterous Insects.*

Illustrations of Typical Specimens of Lepidoptera Heterocera. Parts I.-VI., 4vo. Coloured Plates. 1877-86, 2l. to 2l. 10s. a part.

## FOSSILS.

Descriptive and Illustrated Catalogue of the Fossil Reptilia of South Africa. 70 Plates. 1876, 4to. 3l. 3s.

A Catalogue of British Fossil Crustacea, with their Synonyms and the Range in Time of each Genus and Order. 1877, 8vo. 5s.

Catalogue of the Fossil Foraminifera. 1882, 8vo. 5s.

Catalogue of the Fossil Sponges in the Geological Department. With descriptions of new and little-known species. 38 Plates. 1883, 4to. 1l. 10s.

Catalogue of the Fossil Mammalia. Parts I.-III., 8vo. Woodcuts. 1885, 1886, 4s. to 6s. a volume,

Catalogue of the Palæozoic Plants in the Department of Geology and Palæontology. 1886, 8vo. 5s.

Catalogue of the Blastoidea in the Geological Department. With an account of the morphology and systematic position of the group, and a revision of the genera and species. 20 Plates, &c. 1886, 4to. 25s.

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The above Publications can be purchased at the Natural History Museum, *Cromwell Road, South Kensington*; and of Messrs. LONGMANS & Co., 39, *Paternoster Row*; Mr. QUARITCH, 15, *Piccadilly*; Messrs. ASHER & Co., 13, *Bedford Street, Covent Garden*; and Messrs. TRÜBNER & Co., 57, *Ludgate Hill, London*.

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## GUIDE-BOOKS.

A General Guide to the British Museum (Natural History). With 2 Plans and 1 View. 1887, 8vo. 2*d*.

### ZOOLOGICAL DEPARTMENT.

Guide to the Galleries of Mammalia (Mammalian, Osteological, Cetacean). 57 Woodcuts and 2 Plans. Index. 1885, 8vo. 4*d*.

Guide to the Gallery of Reptilia in the Department of Zoology. 22 Woodcuts and 1 Plan. 1885, 8vo. 2*d*.

Guide to the Gould Collection of Humming Birds. With Map showing the distribution of Humming Birds. 1885, 8vo. 2*d*.

[*Guides to other sections in preparation.*]

### GEOLOGICAL DEPARTMENT.

Guide to the Exhibition Galleries of the Department of Geology and Palæontology. Woodcuts. Table of stratified rocks. Plan of Geological Galleries. 1886, 8vo. 4*d*.

Guide to the Collection of Fossil Fishes in the Department of Geology and Palæontology. Woodcuts. 1885, 8vo. 3*d*.

### MINERAL DEPARTMENT.

A Guide to the Mineral Gallery, with an Introduction to the Study of Minerals. Diagrams. Plan of the Mineral Gallery. Index. 1885, 8vo. 3*d*.

The Student's Index to the Collection of Minerals. 1885, 8vo. 2*d*.

An Introduction to the Study of Meteorites, with a List of the Meteorites represented in the Collection. Plan of the Mineral Gallery, and Index to the Meteorites represented in the Collection. 1886, 8vo. 2*d*.

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## REGULATIONS FOR THE ADMISSION OF STUDENTS.

1. The Exhibition Galleries and Study Collections are open to Students every day of the week except Sunday, and except Good Friday, Christmas Day, and any Fast or Thanksgiving Day appointed by authority.

2. The hours for the Exhibition Galleries are throughout the year from ten in the morning—in January, February, November, and December till four; in March, September, and October till five; and in April, May, June, July, and August till six.

3. The hours for the Study Collections are throughout the year from ten till four o'clock.

4. Persons desiring special facilities for study or drawing in the Exhibition Galleries, or admission to the Study Collections, must apply in writing to the Director of the Museum for a Student's ticket, specifying the profession or business, and place of abode of the applicant, and the Department of the Museum to which admission is required.

5. Every such application must be made two days, at least, before admission is required, and must be accompanied by a written recommendation from a householder (whose address can be identified from the ordinary sources of reference), or a person of known position, with full signature and address, stated to be given on personal knowledge of the applicant, and certifying that he or she will make proper use of the department of Natural History to which such admission is required.

6. If such application or recommendation be unsatisfactory, the Director will either refuse admission, or submit the case to the Trustees for their decision.

7. Tickets of Admission must be produced if required, and are not transferable.

8. The privilege of admission is granted upon the following conditions:—

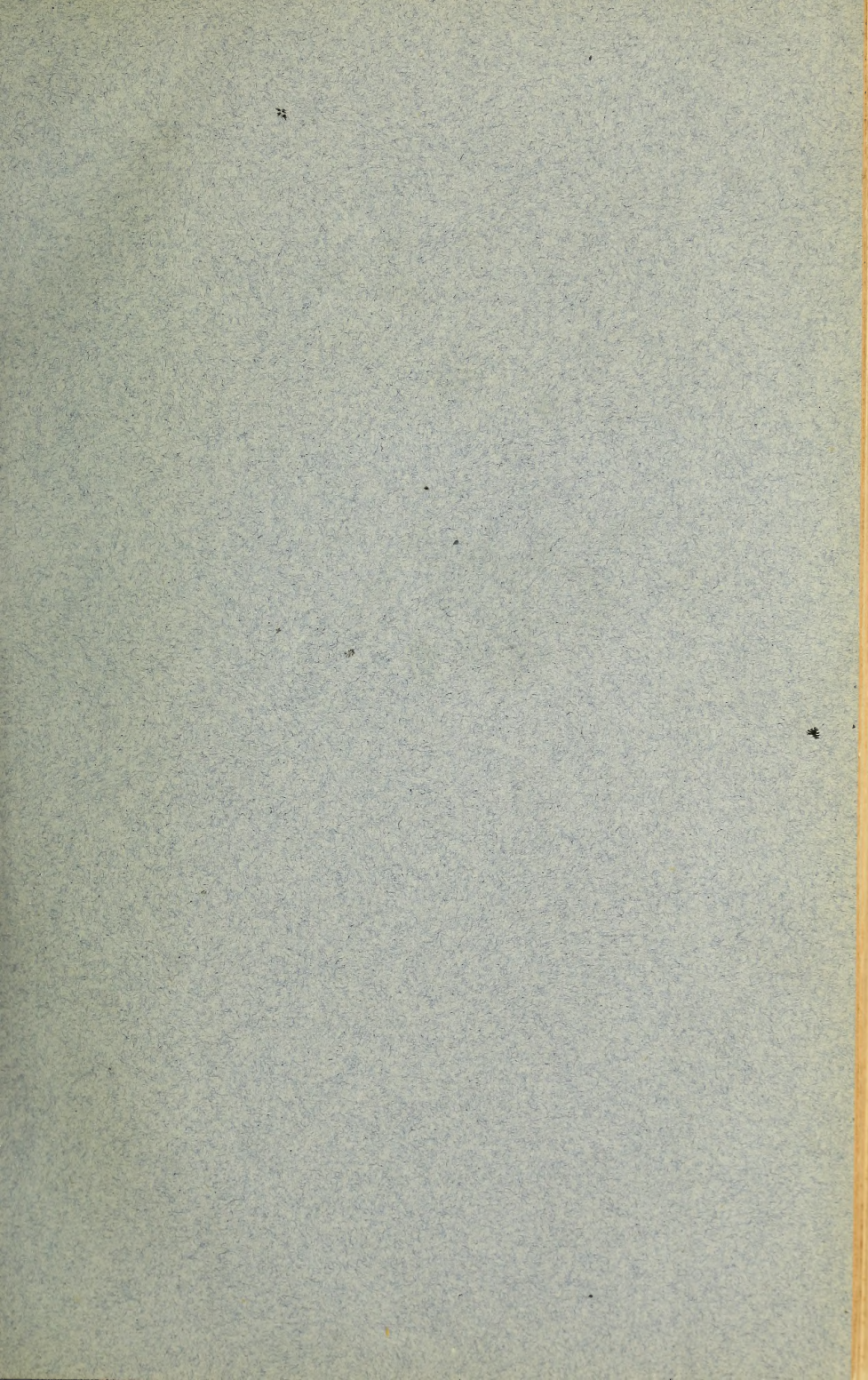
(a.) That it may be at any time suspended by the Director.

(b.) That it may be at any time withdrawn by the Trustees in their absolute discretion.

9. All communications respecting the Departments of Natural History must be addressed to—

THE DIRECTOR,  
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By Order of the Trustees, May 22, 1886.



# BRITISH MUSEUM (NATURAL HISTORY).

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| March,                 | „ „ „ „ 5 „              |
| April to August,       | „ „ „ „ 6 „              |
| September and October, | „ „ „ „ 5 „              |
| November and December, | „ „ „ „ 4 „              |

Also, from May 1st to July 16th, on Mondays and Saturdays only, till 8 P.M.,

and from July 18th to August 29th, on Mondays and Saturdays only, till 7 P.M.

The Museum is closed on Good-Friday and Christmas-Day.

W. H. FLOWER,

*Director.*



